13. (Twice Amended) The method of manufacturing a thin-film transistor according Claim 1, each process carried out after introducing said impurities to said channel region being carried out at a temperature below 300°C.

Please add new claim 14 as follows:

--14. A method of manufacturing a display device comprising a thin-film transistor that is manufactured by:

forming a channel region facing a gate electrode through a gate insulating film;

forming source and drain regions connected to the channel region in a semiconductor film that is formed on a surface of an insulating substrate; and

forming a recombination center that captures carriers in the channel region by introducing an impurity into said channel region.--

REMARKS

Claims 1-14 are pending in this application. By this Supplemental Preliminary Amendment, the abstract, specification claims 1-13 are amended and new claim 14 is added. No new matter is added.

The attached Appendix includes marked-up copies of the substitute specification (37 C.F.R. §1.125(b)(2)) and each rewritten claim (37 C.F.R. §1.121(c)(1)(ii)).

In view of the foregoing amendments and remarks, Applicants submit that this application is in condition for allowance. Favorable consideration and prompt allowance of claims 1-14 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in better condition for allowance, the Examiner is invited to contact Applicants' undersigned attorney at the telephone number listed below.

Respectfully submitted,

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JAO:JSK/kap

Attachments:
Substitute Abstract
Substitute Specification (along with marked-up copy showing the changes made thereto)
Appendix

Date: December 18, 2001

OLIFF & BERRIDGE, PLC
P.O. Box 19928
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Telephone: (703) 836-6400

DEPOSIT ACCOUNT USE AUTHORIZATION
Please grant any extension necessary for entry;
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APPENDIX

Changes to Abstract:

The following is a marked-up version of the amended Abstract:

The present invention provides a thin-film transistor (TFT) and its production method which enables an arrangement restraining bipolar transistor type behavior, in order to stabilize saturation current and to provide a TFT that can improve reliability. ~~In a~~ The TFT ~~10,~~ includes a channel region ~~15~~ facing a gate electrode ~~14~~ through a gate insulating film ~~12~~, a source electrode ~~16~~ connected to the channel region ~~15~~ and a drain region ~~17~~ connected to the channel region ~~15~~ on the side opposite this source region ~~16~~ are formed in a polycrystal semiconductor film ~~100~~ that was patterned in island forms. In the channel region ~~15~~, a recombination center ~~150~~ is formed for capturing a small number of carriers (holes) by introducing impurities, such as inert gases, metals, Group III elements, Group IV elements and Group V elements after a crystallization process is carried out on a semiconductor film 100. ~~The invention thus provides an arrangement restraining bipolar transistor type behavior, to stabilize saturation current and to provide a TFT that can improve reliability.~~

Changes to Specification:

A Substitute Specification is attached in accordance with 37 C.F.R. 1.125(b)(2).

Changes to Claims:

The following are marked-up versions of the amended claims 1-13:

1. (Amended) A method of manufacturing a thin-film transistor, comprising:

~~wherein~~ forming a channel region facing a gate electrode through a gate insulating film; ~~and~~

forming source and drain regions connected to the channel region ~~are formed~~ in a semiconductor film that is formed on a surface of an insulating substrate, ~~characterized in that~~; and

forming a recombination center ~~for capturing~~ that captures carriers ~~is formed~~ in the channel region by introducing an impurity ~~to~~ into said channel region.

2. (Amended) ~~A~~ The method of manufacturing a thin-film transistor according to Claim 1, ~~characterized in that~~ said impurity ~~is~~ being at least one kind selected from the group ~~consisting of~~ including inert gases, metals, Group III elements, Group IV elements and Group V elements.

3. (Twice Amended) ~~A~~ The method of manufacturing a thin-film transistor according to Claim 1, ~~characterized in that~~ wherein a process of introducing said impurity ~~to~~ into said channel region is carried out by injecting the impurity from a surface side of said channel region.

4. (Amended) ~~A~~ The method of manufacturing a thin-film transistor according to Claim 3, ~~characterized in that~~ wherein a process of introducing said impurity ~~to~~ into said channel region is carried out, after a crystallization process on a semiconductor film so as to form said channel region, by injecting the impurity from a surface side of said channel region.

5. (Amended) ~~A~~ The method of manufacturing a thin-film transistor according to Claim 3, ~~characterized in that~~ wherein a process of introducing said impurity ~~to~~ into said channel region is carried out, after a crystallization process on a semiconductor film so as to form said channel region, by injecting the impurity from a surface side of said channel region before a process of forming said gate electrode on a surface side of the channel region.

6. (Amended) ~~A~~ The method of manufacturing a thin-film transistor according to Claim 3, ~~characterized in that~~ wherein a process of introducing said impurity ~~to~~ into said channel region is carried out, after said gate insulating film and said gate electrode are sequentially formed on a surface side of said channel region, by injecting the impurity from a

surface side of said gate electrode before an interlayer insulating film is formed on a surface side of the gate electrode.

7. (Twice Amended) ~~A~~ The method of manufacturing a thin-film transistor according to Claim 3, ~~characterized in that~~ an average projected range of the impurity in said process of introducing an impurity ~~is~~ being from ~~the~~ a center in ~~the~~ a direction of thickness of said channel region to an interface between the channel region and the gate insulating film.

8. (Twice Amended) ~~A~~ The method of manufacturing a thin-film transistor according to Claim 3, ~~characterized in that~~ an average projected range of the impurity in said process of introducing an impurity ~~is~~ being from ~~the~~ a center in ~~the~~ a direction of thickness of said channel region to an interface between the channel region and a layer located on said substrate side.

9. (Amended) ~~A~~ The method of manufacturing a thin-film transistor according to Claim 1, ~~characterized in that~~ a process of introducing said impurity to said channel region ~~is~~ being carried out by impurity diffusion from an impurity diffusion source arranged at a lower layer side of said channel region.

10. (Amended) ~~A~~ The method of manufacturing a thin-film transistor according to Claim 9, ~~characterized in that~~ said impurity diffusion ~~is~~ being carried out in a crystallization process on a semiconductor film so as to form said channel region.

11. (Twice Amended) ~~A~~ The method of manufacturing a thin-film transistor according to Claim 4, ~~characterized in that~~ said crystallization process ~~is~~ being laser annealing on a semiconductor film so as to form said channel region.

12. (Twice Amended) ~~A~~ The method of manufacturing a thin-film transistor according to Claim 1, ~~characterized in that~~ each process carried out after introducing said impurities to said channel region ~~is~~ being carried out at a temperature below 400°C.

13. (Twice Amended) ~~A~~ The method of manufacturing a thin-film transistor according Claim 1, ~~characterized in that~~ each process carried out after introducing said impurities to said channel region ~~is~~ being carried out at a temperature below 300°C.

Claim 14 is added.